

DETAILED ACTION

1. This action is responsive to the amendment filed on April 24, 2008. Claim 21 is cancelled. Claims 1-20 and 22-25 are pending. Claims 1-20 and 22-25 represent method for computing aggregate traffic between adjacent points of presence in an Internet protocol backbone network

2.

EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Kelly Feimster (Reg. No. 57,781), the attorney in record, gave authorization for this Examiner's Amendment over the telephone during an interview. The claims amendments are as follow:

PLEASE AMEND THE CLAIMS AS FOLLOWS:

1. (Currently Amended) A method for determining link utilization in an IP network, the method comprising:

collecting utilization values for links in the IP network over a predetermined polling period;

collecting topological information for links in the IP network, the topological information identifying each link connecting each adjacent Point of Presence; and

correlating the link utilization values with the topological information[.];

summing the link utilization values for all links connecting a pair of Points of Presence over a predetermined measurement period;

dividing the sum by the number of link utilization values included in the sum to give an average link utilization; and

multiplying the average link utilization by the number of links connecting the pair of Points of Presence to calculate a measure of total traffic flowing between the pair of Points of Presence that is insignificantly effected by one or more missing utilization values.

2. (Original) The method for determining link utilization of claim 1, further comprising:

calculating aggregate link demand.

3. (Original) The method for determining link utilization of claim 2, wherein calculating aggregate link demand comprises:

identifying the Point of Presence pairs connected by each link using the topological information;

summing the utilization values collected for each of the links connecting a Point of Presence pair over a predetermined time period; and

dividing the sum of link utilization values for each Point of Presence pair by the number of utilization values included in the sum.

4. (Previously Presented) The method for determining link utilization of claim 3, wherein the predetermined time period is at least twice as long as the predetermined polling period.

5. (Previously Presented) A method for determining link utilization in an IP network, the method comprising:

collecting link utilization values from routers in the IP network over a predetermined polling period;

collecting topological information from routers in the IP network;

correlating link utilization values with the topological information by identifying the Points of Presence pairs connected by each link for which a link utilization value was collected;

summing the link utilization values for each link connecting a pair of Points of Presence;

dividing the sum of link utilization values for the a-pair of Points of Presence by the number of link utilization values included in the sum to give an average link utilization; and

multiplying the average link utilization by the number of links connecting the two Points of Presence to calculate a measure of total traffic flowing between the two Points of Presence that is insignificantly effected by one or more missing utilization values.

6. (Original) The method for determining link utilization of claim 5, wherein collecting incoming and outgoing link utilization values from routers in the IP network further comprises each router transmitting SNMP messages using UDP transport protocol.

7. (Original) The method for determining link utilization of claim 6, wherein collecting link utilization values from routers in the IP network comprises:

receiving an exponentially weighted moving average of link utilization measurements for a first short time frame; and

averaging the received moving average link utilization measurements over a second longer time frame.

8. (Original) The method for determining link utilization of claim 6, wherein collecting link utilization values from routers in the IP network comprises:

receiving the total number of bytes transmitted over a link for a first short time frame; and

averaging the received total number of bytes over a second longer time frame.

9. (Original) The method for determining link utilization of claim 6, wherein collecting link utilization values from routers in the IP network comprises:

receiving the total number of bytes received over a link for a first short time frame; and

averaging the received total number of bytes over a second longer time frame.

10. (Original) The method for determining link utilization of claim 6, wherein collecting link utilization values from routers in the IP network comprises:

receiving the total number of bytes transmitted and received for a link over a first short time frame; and

averaging the received total number of bytes for a second longer time frame.

11. (Original) The method for determining link utilization of claim 6, wherein downloading configuration information comprises downloading the name of each router, the Point of Presence containing each router, all active links connected to each router, and the destination of each active link connected to each router.

12. (Original) The method for determining link utilization of claim 11, wherein collecting topological information from routers comprises downloading configuration information at predetermined time intervals.

13. (Original) The method for determining link utilization of claim 12, wherein the predetermined time intervals at which configuration information is downloaded comprises one week.

14. (Original) The method for determining link utilization of claim 13, wherein collecting incoming and outgoing link utilization values from the routers in the IP network comprises collecting incoming and outgoing link utilization values from all routers in the IP network.

15. (Original) The method for determining link utilization of claim 14, wherein collecting topological information from routers in the IP network comprises collecting topological information from all routers in the IP network.

16. (Currently Amended) A method for determining aggregate link utilization between two Points of Presence, wherein a plurality of links connects the two Points of Presence, the method comprising:

collecting link utilization values for one or more links connecting the two Points of Presence over a predetermined polling period, wherein at least one link connecting the two Points of Presence corresponds with one or more missing utilization values over the predetermined polling period;

summing the link utilization values for all links connecting the two Points of Presence over a predetermined measurement period;

dividing the sum by the number of link utilization values included in the sum to give an average link utilization; and

multiplying the average link utilization by the number of links connecting the two Points of Presence to calculate a measure of total traffic flowing between the two Points of Presence that is insignificantly effected by the one or more missing utilization values.

17. (Original) The method for determining aggregate link utilization between two Points of Presence of claim 16, wherein collecting link utilization data for each link connecting the two Points of Presence comprises:

each router in the two Points of Presence providing incoming and outgoing link utilization information, the incoming and outgoing link utilization information being an average over a short period of time; and

averaging the incoming and outgoing link utilization information over a longer period of time.

18. (Original) The method of determining aggregate link utilization between two Points of Presence of claim 17, wherein the incoming and outgoing link utilization information further comprises an exponentially weighted moving average.

19. (Original) The method for determining aggregate link utilization between two Points of Presence of claim 18, wherein the longer period of time over which the incoming and outgoing link utilization information is averaged comprises ninety minutes.

20. (Currently Amended) At least one machine readable media for causing at least one network management station in an IP network to perform a method for determining link utilization in an IP network, the method comprising:

collecting incoming and outgoing link utilization values from routers over a predetermined polling period;

correlating the link utilization values with the topological information;

summing the link utilization values collected over a first predetermined time period for links connecting a pair of Points of Presence, wherein at least one link connecting the pair of Points of Presence has one or more missing utilization values;

dividing the sum by the number of link utilization values included in the sum to give an average link utilization;

calculating a measure of total traffic flowing between the pair of Points of Presence by multiplying the average link utilization by the number of links connecting the pair of Points of Presence to compensate for the one or more missing utilization values of the at least one link connecting the pair of Points of Presence; and

collecting topological information from the routers at one or more second predetermined time intervals, the topological information identifying each link connecting the pair of Points of Presence;

21. (Canceled).

22. (Original) The at least one machine readable media of claim 2021, wherein the first predetermined time period is at least twice as long as the polling period.

23. (Original) The at least one machine readable media of claim 22, wherein the polling period comprises five minutes.

24. (Original) The at least one machine readable media of claim 23, wherein the first predetermined time period comprises ninety minutes.

25. (Original) The at least one machine readable media of claim 24, wherein the second predetermined time intervals comprise one week.

Allowable Subject Matter

3. Claims 1-20 and 22-25 are allowed.

4. Pursuant to 37 C.F.R 1.109 and MPEP 1302.14, the following is an Examiner's statement of reasons for allowance:

The prior arts in record fail to teach "dividing the sum by the number of link utilization values included in the sum to give an average link utilization; and multiplying the average link utilization by the number of links connecting the two Points of Presence to calculate a measure of total traffic flowing between the two Points of Presence that is insignificantly effected by the one or more missing utilization values,

as recited in independent claims 1, 5, 16 and 20". After an update search of class, subclass and cross-reference, Examiner came to conclusion that the case is allowable.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

5.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to El Hadji M Sall whose telephone number is 571-272-4010. The examiner can normally be reached on 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ario Etienne can be reached on 571-272-4001. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/El Hadji M Sall/

Examiner, Art Unit 2157

/Ario Etienne/

Supervisory Patent Examiner, Art Unit 2157